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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/661,104

09/12/2003

Luca Pividori

02-AG-029/RR

6564

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08/11/2006

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EXAMINER

ESTRADA, MICHELLE

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 08/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,104

Applicant(s)

PIVIDORI, LUCA

Examiner

Michelle Estrada

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/17/06 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 6-13 and 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. (2004/0048468).

Re claims 1 and 13, Liu et al. disclose forming a layer of BPSG (12) on a surface of an integrated circuit (10); and forming a transparent layer of nitride UV (14) above the layer of BPSG (See fig. 1); and after the step of forming the transparent layer of nitride

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UV, etching the transparent layer of nitride UV so as to form at least one contact opening, where there is form plug 13. The transparency of the silicon nitride to UV light is an inherent property.

Re claims 6 and 16, Liu et al. disclose wherein the step of forming the transparent layer of nitride UV, the transparent layer of nitride UV is formed by deposition using an HDP process (Page 3, Paragraph [0048]).

Re claim 7, Liu et al. disclose wherein the transparent layer of nitride UV has a thickness of between about 100 Å and 500 Å (Page 3, paragraph [0048]).

Re claims 8 and 17, Liu et al. disclose wherein the step of forming the transparent layer of nitride UV, the transparent layer of nitride UV is formed by deposition using an CVD process (Page 3, Paragraph [0048]).

Re claim 9, Liu et al. disclose wherein the transparent layer of nitride UV has a thickness of between about 100 Å and 500 Å (Page 3, paragraph [0048]).

Re claims 10 and 19, Liu et al. disclose wherein the transparent layer of nitride UV has a thickness of between about 100 Å and 500 Å (Page 3, paragraph [0048]).

Re claims 11 and 18, Liu et al. disclose wherein the transparent layer of nitride UV has a thickness of between about 100 Å and 500 Å (Page 3, paragraph [0048]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. as applied to claims 1, 6-13 and 16-19 above, and further in view of Applicant's Admitted Prior Art (AAPA).

Re claim 12, Liu et al. disclose wherein the transparent layer of nitride UV has a thickness of between about 100 Å and 500 Å (Page 3, paragraph [0048]), which overlaps with the recited range of claim 12 (200-500 Å).

Liu et al. do not disclose after the step of forming a transparent layer of nitride UV, forming two overlapped layers of BARC and resist on the surface of the integrated circuit.

Re claims 2 and 14, AAPA discloses after the step of forming the BPSG layer, forming two overlapped layers of BARC and resist on the surface of the integrated circuit (Page 4, lines 6-11).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Liu et al. and AAPA to enable the BARC's and resist layers formation step of AAPA to be performed in the process of Liu et al. for the masks to be used in the exposure of the DUV rays.

Re claim 3, AAPA discloses wherein the etching step is performed after the step of forming two overlapped layers of BARC and resist (See Fig. 4 and Page 4, lines 12-15).

Re claims 4, 5 and 15, AAPA discloses before the step of forming a layer of BPSG, forming a USG oxide layer on the surface of the integrated circuit, the USG oxide layer having a thickness of between 500 Å and 2500 Å (Page 4, lines 23-25).

Response to Arguments

Applicant's arguments filed 7/17/06 have been fully considered but they are not persuasive. Applicant argues that the Examiner has introduced a new ground of rejection not necessitated by amendment of the applicant, and therefore the "final" status of the present office action is premature and should be withdrawn. However Applicant amended the claim 1 to say "after the set of forming the transparent layer of nitride UV, etching the transparent layer of nitride UV so as to form at least one contact opening", that is different from what it was claimed in original claim 3 "performing an etching step after the step of forming two overlapped layers of BARC and resist, chemically etching the integrated circuit so as to form contact openings. Therefore the final rejection mailed 12/13/05 was proper and necessitated by amendment.

The Examiner noted and revised the copy of the patent proposal made by Applicant prior to September 10, 2002. However, this evidence should be submitted with an Affidavit 1.131, therefore the claims stand rejected as above.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michelle Estrada
Primary Examiner
Art Unit 2823